Claims

[c1] 1. A method of reducing NO_x in exhaust gases of an internal combustion engine, the method comprising:

a) dividing the exhaust gases into a first exhaust gas portion and a second exhaust gas portion;

b) oxidizing hydrocarbons and NO in the first exhaust gas portion;

c) oxidizing hydrocarbons in the second exhaust gas portion while leaving the NO essentially unreacted;

d) recombining the first exhaust gas portion and the second exhaust gas portion to form a recombined exhaust gas; and

e) exposing the recombined exhaust gas to an SCR catalyst wherein NO and NO_2 in the recombined exhaust gas is reduced.

[c2] 2. The method of claim 1 wherein the internal combustion engine is a diesel engine or a lean burn gasoline engine.

[c3] 3. The method of claim 1 wherein the ratio of the volume of the first exhaust gas portion to the volume of the second exhaust gas portion is from about 0.5 to about 2.

[c4] 4. The method of claim 1 wherein the ratio of the volume of the first exhaust gas portion to the volume of the second exhaust gas portion is about 1.

[c5] 5. The method of claim 1 wherein the step of oxidizing the first exhaust gas portion comprises flowing the first exhaust gas portion through a first catalytic chamber that includes platinum.

[c6] 6. The method of claim 5 wherein the first catalytic chamber is a monolith, the monolith comprising a plurality of essentially parallel tubes through which the exhaust gases flow.

[c7] 7. The method of claim 5 wherein the essentially parallel tubes are coated with platinum.

[c8] 8. The method of claim 1 wherein the first catalytic chamber is a particulate filter, the particulate filter comprising channels through which the exhaust

gases flow.

[c9] 9. The method of claim 8 wherein the channels are coated with platinum.

[c10] 10. The method of claim 1 wherein the step of oxidizing the second exhaust gas portion comprises flowing the second exhaust gas portion through a second catalytic chamber that includes palladium.

[c11] 11. The method of claim 10 wherein the second catalytic chamber is a monolith, the monolith comprising a plurality of essentially parallel tubes through which the exhaust gases flow.

[c12] 12. The method of claim 11 wherein the essentially parallel tubes are coated with palladium.

[c13] 13. The method of claim 10 wherein the second catalytic chamber is a particulate filter, the particulate filter comprising channels through which the exhaust gases flow.

[c14] 14. The method of claim 13 wherein the channels are coated with palladium.

[c15] 15. The method of claim 1 wherein steps a, b and c are combined together by flowing the exhaust gases through a catalytic monolith, the catalytic monolith comprising a plurality of essentially parallel tubes through which the exhaust gases flow, wherein a first group of the tubes are coated with a first catalytic material that oxidizes the NO and the hydrocarbons and a second group of the tubes are coated with a second catalytic material that oxidizes the hydrocarbons while leaving the NO essentially unreacted.

[c16] 16. The method of claim 15 wherein the first group of tubes is coated with a first coating that includes platinum and the second group of tubes is coated with a second coating that includes palladium.

[c17] 17. The method of claim 15 wherein the ratio of the number of tubes in the first group of tubes to the number of tubes in the second group of tubes is from about 0.5 to about 2.

[c18] 18. The method of claim 15 wherein the ratio of the number of tubes in the first

group of tubes to the number of tubes in the second group of tubes is about 1.

[c19] 19. A vehicle exhaust system comprising:
a first catalytic chamber through which a first exhaust gas portion flows wherein the first catalytic chamber oxidizes NO and hydrocarbons; and
a second catalytic chamber through which a second exhaust gas portion flows wherein the second catalytic chamber oxidizes hydrocarbons while leaving NO essentially unreacted.

[c20] 20. The vehicle exhaust system of claim 19 further comprising an SCR catalyst located downstream of the first and second catalytic chambers.

[c21] 21. The vehicle exhaust system of claim 19 wherein the first catalytic chamber is a monolith, the monolith comprising a plurality of essentially parallel tubes through which the exhaust gases flow.

[c22] 22. The vehicle exhaust system of claim 21 wherein the essentially parallel tubes are coated with platinum.

[c23] 23. The vehicle exhaust system of claim 19 wherein the first catalytic chamber is a particulate filter, the particulate filter comprising channels through which the exhaust gases flow.

[c24] 24. The vehicle exhaust system of claim 23 wherein the channels are coated with platinum.

[c25] 25. The vehicle exhaust system of claim 19 wherein the second catalytic chamber is a monolith, the monolith comprising a plurality of essentially parallel tubes through which the exhaust gases flow.

[c26] 26. The vehicle exhaust system of claim 25 wherein the essentially parallel tubes are coated with palladium.

[c27] 27. The vehicle exhaust system of claim 19 wherein the second catalytic chamber is a particulate filter, the particulate filter comprising channels through which the exhaust gases flow.

[c28] 28. The vehicle exhaust system of claim 27 wherein the channels are coated

with palladium.

[c29] 29. The vehicle exhaust system of claim 19 further comprising a flow divider for separating exhaust gases from an internal combustion engine into a first exhaust gas portion and a second exhaust gas portion.

[c30] 30. A Vehicle exhaust system comprising:
a catalytic chamber that has a plurality of channels through which exhaust gases flow, wherein a first group of the channels are coated with a first catalytic material that oxidizes the NO and the hydrocarbons and a second group of the channels are coated with a second catalytic material that oxidizes the hydrocarbons while leaving the NO essentially unreacted.

[c31] 31. The method of claim 30 wherein the catalytic chamber is a monolith and the plurality of channels are essentially parallel tubes.

[c32] 32. The method of claim 30 wherein the catalytic chamber is a monolith and the plurality of channels are essentially parallel tubes.

[c33] 33. The method of claim 30 wherein the first group of tubes is coated with a first coating that includes platinum and the second group of tubes is coated with a second coating that includes palladium.

[c34] 34. The method of claim 30 wherein the ratio of the number of tubes in the first group of tubes to the number of tubes in the second group of tubes is from about 0.5 to about 2.

[c35] 35. The method of claim 30 wherein the ratio of the number of tubes in the first group of tubes to the number of tubes in the second group of tubes is about 1.